

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A method comprising:
tracking, by at least one computer, user interactions across multiple web pages and
identifying an item from each user interaction with a web page of the multiple
web pages, information about each user interaction is stored ~~collecting user events~~
~~of a first and a second user across a plurality of different application domains in a~~
database as a user event, wherein each user interaction's ~~of the~~ user event[[s]] is at
least in part defined by one or more user event parameters including an item
identifier identifying the item from the user interaction, and wherein the event
parameters are automatically updated;
receiving, by the at least one computer, a triggering event for recommendation[[s]];
analyzing, by the at least one computer, the user interactions using the item identifier
from the user events in the database to formulate at least one correlation between
at least two user interactions; and events in the database, wherein ~~the at least two~~
~~user events are from at least two different domains of the plurality; and~~
generating, by the at least one computer, recommendations in response to the triggering
event in accordance with the at least one correlation between the at least two user
~~events in the database~~ interactions.
2. (Currently Amended) The method of claim 1, ~~wherein collecting user events comprises~~
further comprising:
receiving a user event from the plurality of domains;
validating, for each user interaction's user event, the user event parameters in accordance
with a predetermined set of rules;
if the user event fails to meet one of the predetermined set of rules, rejecting the user
event; and

- if the user event meets the predetermined set of rules, storing the user event in the database.
3. (Original) The method of claim 2, wherein validating a particular user event parameter comprises:
- if the particular user event parameter exists in the database, continue validating another user event parameter until all user event parameters are validated; and
- if the particular user event parameter does not exist in the database, checking whether a predefined dynamic updating configuration corresponding to the particular user event parameter is enabled;
- if the dynamic updating configuration corresponding to the particular user event parameter is enabled, adding the particular user event parameter to the database; and
- if the dynamic updating configuration corresponding to the particular user event parameter is not enabled, rejecting the user event.
4. (Currently Amended) The method of claim 2, the user event parameters comprise a user event item that stores the item identifier, the user event parameters further comprising user event domain, user event type and user identifier, wherein validating the user event parameters comprises:
- validating the user event domain;
- validating the user event type;
- validating the user event value;
- validating the user event item; and
- validating the user identifier.
5. (Currently Amended) The method of claim 1, wherein analyzing the user interactions further events comprises:
- applying a collaborative filter on the user events corresponding to the user interactions to

compute correlation values between the user ~~events~~ interactions; and
storing the correlation values in a similarity database.

6. (Currently Amended) The method of claim 1 further comprising:
receiving, by the at least one computer as the triggering event, a request for
recommending similar items; and
generating, by the at least one computer, recommendations of similar items in accordance
with the at least one correlation between the at least two user ~~events~~ in the
database interactions.
7. (Currently Amended) The method of claim 6 further comprising generating, by the at
least one computer, recommendations of similar items in accordance with a priority
scheme.
8. (Currently Amended) The method of claim 6, each user interaction's user event has a
source domain parameter identifying a source domain, wherein generating
recommendations of similar items comprises:
validating the request, wherein the request includes a set of predefined parameters;
if the source domain[[s are]] is specified in the request, generating a first list of
recommendations in accordance with the source domain[[s]] specified in the
request and the source domain parameter in the database; and
if the source domain[[s are]] is not specified in the request, generating the first list of
recommendations in accordance with the source ~~all available~~ domain[[s]]
parameter in the database.
9. (Original) The method of claim 8, wherein generating the first list of recommendations
comprises:
if the first list of recommendations is less than or equal to a predefined minimum number
of items, returning the first list of recommendations; and

- if the first list of recommendations is greater than the predefined minimum number of items, improving the first list of recommendations in accordance with correlation values and the set of predefined parameters.
10. (Original) The method of claim 9, wherein improving the first list of recommendations comprises:
- forming a second list of recommendations from items of the first list of recommendations having a correlation value at or above a predefined threshold;
 - if the second list of recommendations is less than or equal to the predefined minimum number of items, selecting a third list of recommendations comprising the minimum number of items prioritized according to correlation value from items of the first list of recommendations and returning the third list of recommendations; and
 - if the second list of recommendations is greater than the predefined minimum number of items, improving the second list of recommendations in accordance with the correlation values and the set of predefined parameters.
11. (Currently Amended) The method of claim 10, wherein improving the second list of recommendations comprises:
- if the second list of recommendations is less than or equal to a predefined maximum number of items, returning the second list of recommendations; and
 - if the second list of recommendations generated is greater than the predefined maximum number of items, further improving the second list of recommendations in accordance with the ~~predefined~~ source domain[[s]] parameter in the request.
12. (Currently Amended) The method of claim 11, each recommendation in the second list has an associated source domain, wherein the step of further improving the second list of recommendations comprises:
- separating the second list of recommendations into a plurality of groups in accordance

- with the predefined source domain[[s]] associated with each recommendation;
- (a) traversing each group one at a time, selecting a recommendation from the group, the selected recommendation having the highest correlation value relative to other recommendations in the group to form a fourth list of recommendations;
- (b) repeating step (a) until the fourth list of recommendations is equal to the predefined maximum number of items; and
- returning the fourth list of recommendations.
13. (Currently Amended) The method of claim 1 further comprising:
receiving, by the at least one computer, a request for recommending personalized items;
and
generating, by the at least one computer, personalized recommendations in accordance with the at least one correlation between the at least two user ~~events in the database~~ interactions.
14. (Currently Amended) The method of claim 13, wherein generating the personalized recommendations comprises:
validating the request, wherein the request includes a set of predefined parameters;
retrieving a first list of items the user shown preference from the database, wherein each item has a correlation value greater than or equal to a predefined threshold;
(a) creating a set of recommendations of similar items for each item the user has shown preference;
(b) storing the set of recommendations of similar items into a first list of recommendations; and
(c) repeating steps (a) and (b) until all members of the first list of items are traversed; and refining the first list of recommendations in accordance with the correlation values and [[a]] the set of predefined parameters.
15. (Currently Amended) The method of claim 14, wherein refining the first list of

recommendations comprises:

if the first list of recommendations is less than or equal to a ~~a~~ [[the]] predefined minimum number of items, returning the first list of recommendations; and

if the first list of recommendations is greater than the predefined minimum number of items, improving the first list of recommendations in accordance with the correlation values and the set of predefined parameters.

16. (Currently Amended) The method of claim 15, wherein improving the first list of recommendations comprises:

forming a second list of recommendations from items of the first list of recommendations having a correlation value at or above the ~~[[a]]~~ predefined threshold;

if the second list of recommendations is less than or equal to the predefined minimum number of items, selecting a third list of recommendations comprising the minimum number of items prioritized according to correlation value from items of the first list of recommendations and returning the third list of recommendations;

if the second list of recommendations is greater than the predefined minimum number of items, improving the second list of recommendations in accordance with the correlation values and the set of predefined parameters.

17. (Currently Amended) The method of claim 16, the request identifies a source domain, wherein improving the second list of recommendations comprises:

if the second list of recommendations is less than or equal to a predefined maximum number of items, returning the second list of recommendations; and

if the second list of recommendations generated is greater than the predefined maximum number of items, further improving the second list of recommendations in accordance with the ~~predefined request's~~ source domains in the request.

18. (Currently Amended) The method of claim 17, each recommendation in the second list has an associated source domain, wherein the step of further improving the second list of

recommendations comprises:

separating the second list of recommendations into a plurality of groups in accordance with the ~~predefined~~ source domain[[s]] associated with each recommendation;

(a) traversing each group one at a time, selecting a recommendation from the group, the selected recommendation having the highest correlation value relative to other recommendations in the group to form a fourth list of recommendations;

(b) repeating step (a) until the fourth list of recommendations is equal to the predefined maximum number of items; and

returning the fourth list of recommendations.

19. (Currently Amended) A system comprising:

~~a plurality of domain servers for handling user events via the Internet;~~

~~a database for storing the user events of a first and a second user; and~~

~~a recommendation engine including one or more computer programs containing instructions for:~~

a server computer comprising at least one processor and memory, the memory storing and the at least one processor executing instructions to:

track user interactions across multiple web pages and identify an item from each user interaction with a web page of the multiple web pages, and store information about each user interaction collecting the user events of the first and the second user across a plurality of domains in [[the]] a database as a user event, wherein each user interaction's of the user event[[s]] is at least in part defined by one or more user event parameters including an item identifier identifying the item from the user interaction, and wherein the event parameters are automatically updated;

receive[[ing]] a triggering event for recommendation;

analyze[[ing]] the user interactions using the item identifier from the user events in the database to formulate at least one correlation between at least two user interactions; and events in the database, wherein the at least two user

~~events are from at least two different domains of the plurality of domains;~~
~~and~~
generate[[ing]] recommendations in response to the triggering event in accordance
with the at least one correlation between the at least two user ~~events in the~~
database interactions.

20. (Currently Amended) The system of claim 19, wherein the instructions ~~for collecting~~
user events further comprise instructions [[for]] to:
~~receiving a user event from the plurality of domains;~~
validate, for each user interaction's user event,[[ing]] the user event parameters in
accordance with a predetermined set of rules;
if the user event fails to meet one of the predetermined set of rules, reject[[ing]] the user;
and
if the user event meets the predetermined set of rules, store[[ing]] the user event in the
database.
21. (Currently Amended) The system of claim 20, wherein the instructions [[for]] to
validate[[ing]] a particular user event parameter comprise instructions [[for]] to:
if the particular user event parameter exists in the database, continue validate[[ing]]
another user event parameter until all user event parameters are validated; and
if the particular user event parameter does not exist in the database, check[[ing]] whether
a predefined dynamic updating configuration corresponding to the particular user
event parameter is enabled;
if the dynamic updating configuration corresponding to the particular user event
parameter is enabled, add[[ing]] the particular user event parameter to the
database; and
if the dynamic updating configuration corresponding to the particular user event
parameter is not enabled, reject[[ing]] the user event.

22. (Currently Amended) The system of claim 20, the user event parameters comprise a user event item that stores the item identifier, the user event parameters further comprising user event domain, user event type, user event value and user identifier, wherein the instructions `[[for]] to validate[[ing]]` the user event parameters comprise instructions `[[for]] to:`
 `validate[[ing]]` the user event domain;
 `validate[[ing]]` the user event type;
 `validate[[ing]]` the user event value;
 `validate[[ing]]` the user event item; and
 `validate[[ing]]` the user identifier.
23. (Currently Amended) The system of claim 19, wherein the instructions `[[for]] to` `analyze[[ing]]` the user interactions events comprise instructions `[[for]] to:`
 `apply[[ing]]` a collaborative filter on the user events corresponding to the user interactions
 to compute correlation values between the user events interactions; and
 `store[[ing]]` the correlation values in a similarity database.
24. (Currently Amended) The system of claim 19, the instructions computer programs of the recommendation engine further comprising instructions `[[for]] to:`
 `receive, as the triggering event,[[ing]]` a request for recommending similar items; and
 `generate[[ing]]` recommendations of similar items in accordance with the at least one
 correlation between the at least two user events in the database interactions.
25. (Currently Amended) The system of claim 24, the instructions further comprising instructions `[[for]] to` `generate[[ing]]` recommendations of similar items in accordance with a priority scheme.
26. (Currently Amended) The system of claim 24, each user interaction's user event has a source domain parameter identifying a source domain, wherein the instructions `[[for]] to`

generate[[ing]] recommendations of similar items comprise instructions [[for]] to:
validate[[ing]] the request, wherein the request includes a set of predefined parameters;
if the source domain[[s are]] is specified in the request, generate[[ing]] a first list of
recommendations in accordance with the source domain[[s]] specified in the
request and the source domain parameter in the database; and
if the source domain[[s are]] is not specified in the request, generating the first list of
recommendations in accordance with the source all-available domain[[s]]
parameter in the database.

27. (Currently Amended) The system of claim 26, wherein the instructions [[for]] to
generate[[ing]] the first list of recommendations comprise instructions [[for]] to:
if the first list of recommendations is less than or equal to a predefined minimum number
of items, return[[ing]] the first list of recommendations; and
if the first list of recommendations is greater than the predefined minimum number of
items, improve[[ing]] the first list of recommendations in accordance with
correlation values and the set of predefined parameters.
28. (Currently Amended) The system of claim 27, wherein the instructions [[for]] to
improve[[ing]] the first list of recommendations comprise instructions [[for]] to:
form[[ing]] a second list of recommendations from items of the first list of
recommendations having a correlation value above a predefined threshold;
if the second list of recommendations is less than or equal to the predefined minimum
number of items, select[[ing]] a third list of recommendations comprising the
minimum number of items prioritized according to correlation value from items of
the first list of recommendations and returning the third list of recommendations;
if the second list of recommendations is greater than the predefined minimum number of
items, improve[[ing]] the second list of recommendations in accordance with the
correlation values and the set of predefined parameters.

29. (Currently Amended) The system of claim 28, wherein the instructions ~~[[for]]~~ to improve~~[[ing]]~~ the second list of recommendations comprise instructions ~~[[for]]~~ to: if the second list of recommendations is less than or equal to a predefined maximum number of items, return~~[[ing]]~~ the second list of recommendations; and if the second list of recommendations generated is greater than the predefined maximum number of items, further improve~~[[ing]]~~ the second list of recommendations in accordance with the ~~predefined~~ source domain~~[[s]]~~ parameter-in-the-database.
30. (Currently Amended) The system of claim 29, each recommendation in the second list has an associated source domain, wherein the instructions ~~[[for]]~~ to further improve the second list of recommendations~~[[ing]]~~ comprise instructions ~~[[for]]~~ to: separate~~[[ing]]~~ the second list of recommendations into a plurality of groups in accordance with the ~~predefined~~ source domain~~[[s]]~~ associated with each recommendation;
- (a) traverse~~[[ing]]~~ each group one at a time, select~~[[ing]]~~ a recommendation from the group, the selected recommendation having the highest correlation value relative to other recommendations in the group to form a fourth list of recommendations;
- (b) repeat~~[[ing]]~~ step (a) until the fourth list of recommendations is equal to the predefined maximum number of items; and return~~[[ing]]~~ the fourth list of recommendations.
31. (Currently Amended) The system of claim 19, the ~~instructions~~ computer programs of the recommendation engine further comprising instructions ~~[[for]]~~ to: receive~~[[ing]]~~ a request for recommending personalized items; and generate~~[[ing]]~~ personalized recommendations in accordance with the at least one correlation between the at least two user ~~events in the database~~ interactions.

32. (Currently Amended) The system of claim 31, wherein the instructions [[for]] to generate~~[[ing]]~~ the personalized recommendations comprise instructions [[for]] to: validate~~[[ing]]~~ the request, wherein the request includes a set of predefined parameters; retrieve~~[[ing]]~~ a first list of items the user has shown preference from the database, wherein each item has a correlation value greater than or equal to a predefined threshold; (a) create~~[[ing]]~~ a set of recommendations of similar items for each item the user has shown preference; (b) store~~[[ing]]~~ the set of recommendations of similar items into a first list of recommendations; and (c) repeat~~[[ing]]~~ steps (a) and (b) until all members of the first list of items are traversed; and refine~~[[ing]]~~ the first list of recommendations in accordance with the correlation values and [[a]] the set of predefined parameters.
33. (Currently Amended) The system of claim 32, wherein instructions [[for]] to refine~~[[ing]]~~ the first list of recommendations comprise instructions [[for]] to: if the first list of recommendations is less than or equal to a ~~[[the]]~~ predefined minimum number of items, return~~[[ing]]~~ the first list of recommendations; and if the first list of recommendations is greater than the predefined minimum number of items, improve~~[[ing]]~~ the first list of recommendations in accordance with the correlation values and the set of predefined parameters.
34. (Currently Amended) The system of claim 33, wherein instructions [[for]] to improve~~[[ing]]~~ the first list of recommendations comprise instructions [[for]] to: form~~[[ing]]~~ a second list of recommendations from items of the first list of recommendations having a correlation value above the ~~[[a]]~~ predefined threshold; if the second list of recommendations is less than or equal to the predefined minimum number of items, select~~[[ing]]~~ a third list of recommendations comprising the minimum number of items prioritized according to correlation value from items of

the first list of recommendations and return[[ing]] the third list of recommendations;

if the second list of recommendations is greater than the predefined minimum number of items, improve[[ing]] the second list of recommendations in accordance with the correlation values and the set of predefined parameters.

35. (Currently Amended) The system of claim 34, the request has a source domain, wherein instructions [[for]] to improve[[ing]] the second list of recommendations comprise instructions [[for]] to:

if the second list of recommendations is less than or equal to a predefined maximum number of items, return[[ing]] the second list of recommendations; and

if the second list of recommendations generated is greater than the predefined maximum number of items, further improve[[ing]] the second list of recommendations in accordance with the ~~predefined request's source domains in the request~~.

36. (Currently Amended) The system of claim 35, each recommendation in the second list has an associated source domain, wherein the instructions [[for]] to further improve[[ing]] comprise instructions [[for]] to:

separate[[ing]] the second list of recommendations into a plurality of groups in accordance with the ~~predefined~~ source domain[[s]] associated with each recommendation;

(a) traverse[[ing]] each group one at a time, select[[ing]] a recommendation from the group, the selected recommendation having the highest correlation value relative to other recommendations in the group to form a fourth list of recommendations;

(b) repeat[[ing]] step (a) until the fourth list of recommendations is equal to the predefined maximum number of items; and
return[[ing]] the fourth list of recommendations.

37. (Currently Amended) A computer program product, comprising a non-transitory storage

medium tangibly storing computer programs for executing by one or more computer systems, the computer programs comprising instructions to:
~~a recommendation module for generating recommendations across multiple product or service domains, wherein the recommendation module is used in conjunction with at least a processing unit, a user interface, and a database, and the recommendation module includes one or more computer programs containing instructions for:~~
track user interactions across multiple web pages and identify an item from each user interaction with a web page of the multiple web pages, and store information about each user interaction ~~collecting user events of a first and a second user across a plurality of domains in a [[the]] database as a user event, wherein each user interaction's of the user event[[s]] is at least in part defined by one or more user event parameters~~ including an item identifier identifying the item from the user interaction; ~~and wherein the event parameters are automatically updated;~~
receive[[ing]] a triggering event for recommendation[[s]];
analyze[[ing]] the user interactions using the item identifier from the user events in the database ~~to formulate at least one correlation between at least two user interactions; and events in the database, wherein the at least two user events are from at least two different domains of the plurality of domains; and~~
generate[[ing]] recommendations in response to the triggering event in accordance with the at least one correlation between the at least two user events ~~in the database interactions.~~